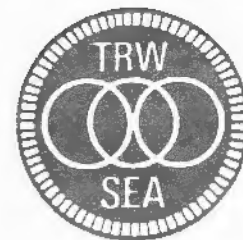




CROSSTALK

News Bulletin of the TRW Amateur Radio Club



Volume 96 Number 2

March 1996

New (Old?) Crosstalk Editor

I'm back as Crosstalk Editor until a permanent replacement can be found. That's an invitation to anyone who wants to get more involved with the club to volunteer. The new officers and staff have volunteered to do some writing and I'm committed to one article per month. This leaves maintaining the calendar and organizing the newsletter as the editor's main job. Even a newcomer to our hobby could do this job, I'll be happy to help.

73 de KJ6GR

Ideas Wanted

I need to know what types of articles our membership would like published in Crosstalk. Unless someone suggests a topic, I'll write about my interests which are HF CW operation and antennas. I know we have a lot of newcomers and VHF/UHF fans in the club. I've enjoyed researching and writing about a wide variety of topics in the past but I need your ideas.

Thanks de KJ6GR

New Magazine for VHF/UHF Enthusiasts

CQ Communications recently began publication of CQ VHF magazine dedicated to ham radio above 50 MHz. The first two issues have been excellent. I found the articles interesting and well written. Newcomers to ham radio or just new to VHF will appreciate the easy to understand language.

de KJ6GR

W6TRW Calendar

March 1996:

Tuesday, Mar 5	5:30 pm	Executive Board Meeting E2/1200 (All Club Members are invited)
Tuesday, Mar 12	12:00 noon	Emergency Communications Team Meeting R3 Emergency Operations Center
Tuesday, Mar 12	5:30 pm	Club Meeting Petrelli's - Aviation Blvd and 2nd St. (Northeast Corner)
Friday, Mar 15	12:00 noon	Technical Chairman's Meeting Building S Hamshack
Tuesday, Mar 26	12:00 noon	Emergency Communications Team Meeting R3 Emergency Operations Center
Saturday, Mar 30	7:00 am	TRW/ARC Swap Meet Marine and Aviation (Northeast Corner)
Saturday, Mar 30	12:00 noon	T-Hunt Swap Meet Parking Lot - 144.72 MHz

April 1996:

Tuesday, Apr 2	5:30 pm	Executive Board Meeting E2/1200 (All Club Members are invited)
Tuesday, Apr 9	12:00 noon	Emergency Communications Team Meeting R3 Emergency Operations Center
Tuesday, Apr 9	5:30 pm	Club Meeting Petrelli's - Aviation Blvd and 2nd St. (Northeast Corner)
Friday, Apr 19	12:00 noon	Technical Chairman's Meeting Building S Hamshack
Tuesday, Apr 23	12:00 noon	Emergency Communications Team Meeting R3 Emergency Operations Center
Saturday, Apr 27	7:00 am	TRW/ARC Swap Meet Marine and Aviation (Northeast Corner)
Saturday, Apr 27	12:00 noon	T-Hunt Swap Meet Parking Lot - 144.72 MHz

Reoccurring Events:

Every Monday Night (Except the 1st & Holidays)	7:30 pm	Disaster Communication Systems (DCS) Net DCS Members: Check in on 2 Meter Repeater
Every Thursday Night	6:30 pm	TRW Amateur Radio Club Net The Bob and ? Show - Check I on 2 Meter Repeater
Every Friday Morning	7:30 am	TRW Amateur Radio Club Breakfast Building S Cafeteria - Everyone is invited Talk-in on 2 Meters

DSP Filter Technology

by Bill Shanney, KJ6GR

The big three amateur radio equipment manufacturers now have high end HF rigs with DSP filtering:

- ICOM IC-775 / DSP (dual receive)

- Auto notch
- Low pass/ High pass
- Ultra narrow CW
- Audio peaking
- Noise reduction

- Kenwood TS-950 SDX (dual receive)

- Bandpass

- Kenwood TS-870 (single receive)

- Auto notch
- Dual mode auto noise reduction
- IF bandpass

- Yaesu FT-1000MP (dual receive)

- Auto notch
- Noise reduction
- Bandpass

These are all full featured transceivers that were given favorable reviews in QST¹. I would encourage you to read these product reviews if you are in the market for a rig of this caliber. Some of these rigs do not have provision for narrow CW filters. They may suffer from a reduction in dynamic range when strong signals appear within the first IF's passband. If you are a DXer or contester, listen to your favorite when the bands are crowded to avoid disappointment later.

If you like the rig you have (or don't have the > \$2700 for these state-of-the-art models) there are accessory DSP audio filters available that do an excellent job of interference fighting. JPS, MFJ, and Time Wave offer models with auto-notch, band pass filters and noise reduction. I've had a JPS NIR-10 for over 3 years and really like it. There have been two software upgrades in that time and each has brought significant performance enhancements.

Common to all of these fine filters is auto-notch which removes those annoying CW tones from SSB signals. Each also has a selection of bandpass filter modes that provide very high rejection to close-by interferers and provide very narrow bandwidths without as much ringing present. These filters also have linear phase characteristics which reduces the smearing of adjacent bits when using FSK (RTTY).

I especially appreciate the noise reduction abilities of DSP. There are two different DSP noise reduction techniques. The first passes signals that have a high degree of repetitiveness such as CW or speech and rejects signals that are random such as atmospheric noise. This is commonly referred to as autocorrelation filtering (JPS refers to it as adaptive peaking).

The second DSP noise reduction technique is called spectral subtraction. This requires the DSP to perform a complex mathematical operation called a transform to convert from the time to the frequency domain followed by an inverse transform back to the time domain. The processing is done in the frequency domain by determining the noise floor and passing only signals above that level. The extra operations (transforms) take time to accomplish. This time delay can be annoying especially if you use the receiver side tone to monitor your CW. A provision to turn off the DSP filter during transmit is a must for CW operation using the spectral subtraction mode.

My personal experience using DSP noise reduction is that sometimes one technique works better than the other, sometimes it makes no difference and sometimes simultaneously using both modes works better. Operating on the low HF bands where QRN is often a problem has demonstrated to me the value of both noise reduction techniques. Do I need a DSP filter all the time ... no. A good noise blanker is more effective on line noise and woodpecker radars. Would I give up my JPS NIR-10 ... no. DSP technology permits operating during a wide variety of conditions and often makes difficult copy perfectly readable.

¹The FT-1000 MP has not been tested in the ARRL Lab yet, however, its performance should be similar to the FT-1000 plus it has DSP. The transmitter output power is reduced to 100 watts from the original 200 watts.

Reference: Hershberger, Dave, W9GR. "DSP - An Intuitive Approach," QST, February 1996, pp 39-42

For Sale: Yaesu FT-1000D, IRC slow tuning board, 600 Hz filter in sub-Rcvr, SP-5 matching speaker. \$2750. Bill, KJ6GR (310) 542-9899 after 6pm.

For Sale: RF Concepts 70 cm. 10/100 watt power amplifier with preamp. \$250. Bill, KJ6GR (310) 542-9899 after 6pm.



The Southern California Six Meter Club Presents
The 41th Annual
West Coast VHF/UHF Conference
May 3 - 5, 1996
Gateway Plaza Holiday Inn
14299 Firestone Blvd., La Mirada, CA



Great Location! Bring the Family. 20 miles from downtown L.A., 10 miles to Disneyland, 4 miles to Knott's Berry Farm and Movieland Wax Museum. Movie Theaters on premises. FREE PARKING.

Planned Events: Friday night T-Hunt, Saturday Exhibits, Technical Sessions, ARRL Forum, Banquet, Sunday Breakfast

Confirmed Speakers: Will Anderson, AA6DD, Six Meters
Art Lange, W6RXQ, GPS
Tim Marek, NC7K, Competitive Multi-op Mountaintopping
Wayne Overbeck, N6NB, A Mountaintop Hamshack-in Kit Form

SPECIAL HOTEL CONFERENCE RATE OF \$62! (Per night, double occupancy, plus local taxes. Be sure to mention the VHF/UHF Conference. For reservations call (310) 739-8500 or FAX (310) 523-9886.

	COST	QUANTITY	TOTAL
Registration	\$15 x	_____	= _____
Banquet (Limited space)	\$20 x	_____	= _____
Breakfast (Limited space)	\$10 x	_____	= _____
Proceedings (Available at conference)	\$10 x	_____	= _____
	Total \$		_____
Name _____	Call _____		
Name _____	Call _____		
Street _____	Phone (____) _____		
City _____	State _____	Zip _____	

Make checks payable to Southern California Six Meter Club. Your canceled check is your receipt.
Send to: SCSMC, P.O. Box 10441, Fullerton, CA 92635.
Info: 714-990-9203; FAX: 714-990-1340; e-mail: rhasting@ix.netcom.com.